L1: Entry 1 of 1 File: USPT Dec 18, 1979

DOCUMENT-IDENTIFIER: US 4179739 A
TITLE: Memory controlled process for railraod traffic management

Detailed Description Text (23):
In a second memory 9, are stored the instantaneous acceleration or deceleration commands to be applied to the vehicle in relation to the vehicle position px. These commands are also cross-related in the memory 10 to the times tx corresponding to the position px according to the assigned time-table. These acceleration or deceleration commands can be computed a priori and entered in the laboratory. Preferably they are recorded during an experimental run of the vehicle over the corresponding itinerary, according to the procedure illustrated in FIG. 13. During subsequent runs command datum .gamma.ex is extracted from the memory 9 in function of the position coordinate px issued by the dead-reckoning process 3, to which a correction factor corresponding to the product of the speed vx by the response time, TR of the vehicle to acceleration or deceleration commands is added at 8. Command datum .gamma.et is extracted from the memory 10 in function of the time te derived from the clock after adding the response time TR to the time Ti, in 7, so that te=tc+TR-TL. A selector circuit 13 allows .gamma.ex to reach adder circuit 14 only when .gamma.ex value is negative or corresponding to a deceleration command. The command .gamma.et is fed to adder 14 only when it is positive and corresponding to an acceleration command. The command data .gamma.ex and .gamma.et should theoretically be sufficient to allow the vehicle to faithfully duplicate the experimental or theoretical run the characteristics of which have been stored in the memories 2 and 9. However, the inherent inaccuracy of the various organs of the vehicles would tend to cause a drift away from the time-table schedule. An additional acceleration or deceleration component .gamma.x is thus generated in 12 in function of the time error .DELTA.tx according to the formula:

Detailed Description Text (28):
It should be noted that the wheel-revolution counter and the accelerometer constitute two measurement techniques which appropriately complement one another. The accelerometer usually gives a reliable measure but its twice integrated output signal is subject to drifting. It is known that during periods of high acceleration or on uphill ramps, the traction wheels of a vehicle are subject to spinning. During the deceleration process the wheels are subject to skidding. The revolution-counter is thus a poor gauge of the distance travelled during these periods; but can safely be relied upon during long periods of constant speed or of low power application, to provide precise measurement on the basis of which the accelerometer can be recalibrated. The increment selector 23 operates in function of the raw, absolute value of acceleration and gives more weight to distance increments from the wheel revolution-counter in inverse proportion to the amplitude of the accelerometer output. A comparator circuit 22 is further added in order to generate a correction factor for the accelerometer and the speed indicator 26 in function of the error detected between pc and py during periods when the wheel revolution-counter can be expected to yield very reliable data.

Detailed Description Text (34):
The wheel circumference factor W (multiplied in 32 by the number of revolutions N

indicated by the counter 15) is quasicontinually adjusted by a minute correction factor .epsilon. added to it at 33. The correction factor .epsilon. is a function of the correction C applied to the display register 25 upon detection of a check point. This correction is computed in the correction circuit 31. A low-pass, integrating type filter 30 may be advantageously installed between the circuit 31 and the adder circuit 33 in order to stabilize the corrective system loop. The exact location coordinates pex of each check point Ex can be determined by survey and written into the memory 17 in the laboratory. These coordinates can also be recorded during an experimental run according to the following procedure.

Detailed Description Text (39):
When identity of signals is found between the information extracted from the memory 17 and the information issued by the sensing equipment 38-39, the corresponding location coordinate Pxn which lies between Pxm and Pxr is transmitted to the correction factor generator circuit 36. In the correction factor generator circuit 36, the location coordinate Pxn is compared to the estimated location px and a correction value C is generated according to a function similar to that illustrated by curve C of FIG. 8. The correction value is then added at 37 to the estimated position coordinate px. The resulting corrected coordinates are then entered into the display register 25. The correction value C is also used to reset the variable statistical factor used in the statistical limit circuit 34.

CLAIMS:

5. The method claimed in 4 which further comprises:

(a) recording in a memory during said experimental run, an identification code for each said event in coordination with its location of occurrence coordinates;

(b) reading at least one of said events identification code during subsequent scheduled runs from said memory according to an address margin determined in function of the estimated location coordinates held in said register combined with statistical factors which are modified in function of the current estimated accuracy of the coordinates held in said register;

(c) comparing the identification code of the event being detected with the identification code being read out from the memory;

(d) upon detecting similarity between said identification codes, generating a correction factor to be applied to the contents of said register where said correction factor is a continuous non-linear function of the difference between the coordinates stored in the register and the prerecorded location coordinates of the detected event.

9. The method claimed in 8 which further comprises:

modifying the wheel circumference factor used to calculate the distance travelled from the wheel revolution counters data, by a correction factor adjusted periodically in function of the error between said data and measurement derived from at least one other means.

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**Search Results** - Record(s) 1 through 1 of 1 returned.

1. Document ID: US 4179739 A

L3: Entry 1 of 1 File: USPT Dec 18, 1979

US-PAT-NO: 4179739
DOCUMENT-IDENTIFIER: US 4179739 A

TITLE: Memory controlled process for railraod traffic management

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L3: Entry 1 of 1 File: USPT Dec 18, 1979

US-PAT-NO: 4179739
DOCUMENT-IDENTIFIER: US 4179739 A

TITLE: Memory controlled process for railraod traffic management

DATE-ISSUED: December 18, 1979

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|---|---|---|---|---|
| Virnot; Alain D. | Del Mar | CA | 92014 | |

INT-CL: [02] G06F 15/48

US-CL-ISSUED: 364/436; 246/3, 246/182R, 364/426
US-CL-CURRENT: 701/117; 246/182R, 246/3, 701/20

FIELD-OF-SEARCH: 364/436, 364/426, 364/450, 24/3, 24/4, 24/5, 24/182R, 24/187R, 24/187A

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected Search ALL Clear

| PAT-NO | ISSUE-DATE | PATENTEE-NAME | US-CL |
|---|---|---|---|
| 3953714 | April 1976 | Gabillard | 364/436 |
| 3971018 | July 1976 | Isbister et al. | 364/436 |
| 3976272 | August 1976 | Murray et al. | 364/436 |
| 4023753 | May 1977 | Dobler | 364/436 |
| 4066877 | January 1978 | Virnot et al. | 364/426 |
| 4084241 | April 1978 | Tsumura | 364/450 |

ART-UNIT: 236

PRIMARY-EXAMINER: Atkinson; Charles E.

# Refine Search

20030057192

**Search Results -**

| Terms | Documents |
|---|---|
| L6 and ((correct$ or edit$ or chang$) with (coefficient or factor)) | 0 |

**Database:**
- US Pre-Grant Publication Full-Text Database
- US Patents Full-Text Database
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**Search:** L7

Refine Search

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## Search History

**DATE: Friday, May 27, 2005** Printable Copy Create Case

| Set Name side by side | Query | Hit Count | Set Name result set |
|---|---|---|---|
| | *DB=USPT; THES=ASSIGNEE; PLUR=YES; OP=OR* | | |
| L7 | L6 and ((correct$ or edit$ or chang$) with (coefficient or factor)) | 0 | L7 |
| L6 | L5 and gps | 1 | L6 |
| L5 | 4179739.urpn. | 15 | L5 |
| L4 | ('4179739')[URPN] | 15 | L4 |
| L3 | 4179739.pn. | 1 | L3 |
| L2 | 4179739.pn. and (gps) | 0 | L2 |
| L1 | 4179739.pn. and ((correct$ or edit$ or chang$) with (coefficient or factor)) | 1 | L1 |

END OF SEARCH HISTORY

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# Refine Search

## Search Results -

| Terms | Documents |
|---|---|
| L40 and (train$ or locomotive) and (wheel$ same (correct$ with (factor or coefficient))) | 0 |

**Database:**

US Pre-Grant Publication Full-Text Database
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**Search:** L42

Refine Search

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## Search History

**DATE: Friday, May 27, 2005** Printable Copy Create Case

| Set Name side by side | Query | Hit Count | Set Name result set |
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| | *DB=USPT; THES=ASSIGNEE; PLUR=YES; OP=OR* | | |
| L42 | l40 and (train$ or locomotive) and (wheel$ same (correct$ with (factor or coefficient))) | 0 | L42 |
| | *DB=PGPB,USPT; THES=ASSIGNEE; PLUR=YES; OP=OR* | | |
| L41 | (3604905 \| 3334224 \| 3383677 \| 3392448 \| 3731088 \| 3845289 \| 3364343 \| 3890616 \| 2990902 \| 3440600 \| 3772640 \| 3268727 \| 3836768 \| 3219815 \| 3681752 \| 3717873 \| 3240929 \| 3188631 \| 3725918 \| 3749893 \| 3250914 \| 3538313 \| 3079494 \| 3789198 \| 3715572)![PN] | 25 | L41 |
| L40 | ('3971018'\| '4066877'\| '4023753'\| '3953714'\| '4084241'\| '3976272')[PN] | 6 | L40 |
| Bwd L39 | (4023753 \| 4084241 \| 4066877 \| 3976272 \| 3971018 \| 3953714)![PN] | 6 | L39 |
| L38 | ('4179739')[PN] | 1 | L38 |
| L37 | L29 and (train$ or locomotive) and (wheel$ same (correct$ with (factor or coefficient))) | 1 | L37 |
| L36 | L35 and (train$ or locomotive) and (wheel$ same (correct$ with (factor or coefficient))) | 0 | L36 |

Fwd.

| | | | |
|---|---|---|---|
| L35 | L31 and @ad<=20031126 | 108 | L35 |
| L34 | ('5390880'\| '6141607'\| '5437422'\| '5828979'\| '6459964'\| '5798949'\| '6662141'\| '6304801'\| '6873962'\| '5440489'\| '4266273'\| '4752053'\| '4617627'\| '5239472'\| '5006847')[URPN] | 108 | L34 |
| L33 | ('4179739')[URPN] | 15 | L33 |
| L32 | L29 and (train$ or locomotive) and (wheel$ same (correct$ with (factor or coefficient))) | 1 | L32 |
| L31 | ('6775690'\| '6860423'\| '6697811'\| '6839753'\| '6790198'\| '6459964'\| '6662141'\| '6304801'\| '6873962'\| '6802003'\| '4752053'\| '5390880'\| '6141607'\| '5239472'\| '5437422'\| '5828979'\| '5006847'\| '5798949'\| '4617627'\| '5440489'\| '4266273')[URPN] | 108 | L31 |
| L30 | ('6408330'\| '4179739')[URPN] | 21 | L30 |
| L29 | 4179739.pn. | 1 | L29 |